MOTOROLA

AAR RAILROAD RADIO SET

CONTROL HEADS

CE2286-F23

TCN6054AJ Control Head with Handset

MODEL CHART

Model	Description	Appropriate Handset
TCN6054AJ	Non-channel reverting	TMN6002C
TCN6055AJ	Automatic Channel reverting	TMN6002C

1. DESCRIPTION

The Motorola railroad control heads listed in the preceding model chart provide control facilities for AAR railroad radio sets. These control heads can be used with installations operating from a primary power source of 12 volts d-c, 64 volts d-c or 117 volts a-c. Each unit includes a channel selector switch for four-frequency operation. A 5" speaker is mounted in the housing. An AAR microphone receptacle is provided for a telephone type handset.

The housing consists of two hinged sections of cast aluminum. The units are ruggedly constructed to withstand shock and vibration. Threaded openings (3/4" pipe thread) are provided at the top and bottom for connection of conduit.

Automatic channel reverting is provided in the Model TCN6055AJ. See paragraphs 2. b. and 5. for details of channel reverting operation.

2. INSTALLATION

The control head is shipped from the factory with a cover over the top threaded opening. This cover is held in place by a tie bar, split lockwasher, and knurled nut. If the top threaded opening is used in the installation rather than the bottom opening, the cover can be removed and placed over the bottom opening.

To open the hinged housing, remove the latch screw located on the left side of the housing in the earpiece section of the hang-up area.

To mount the control head, drill two (2) holes in the housing and secure with two (2) 1/4" diameter or larger screws. Refer to Diagram EPD-10175 for details.

a. Model TCN6054AJ Connections

Connect the Model TCN6054AJ Control Head to the receiver-transmitter per Schematic Diagram 63C81106A57. Use the furnished terminal lugs to terminate the radio set leads before connecting to the control head.

MOTOROLA INC. COMMUNICATIONS DIVISION

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5/25/64-UP

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Issue - A

b. Model TCN6055AJ Connections

Connect the Model TCN6055AJ Control Head to the receiver-transmitter per Schematic Diagram 63D81106A58. Use the furnished terminal lugs to terminate the radio set leads before connecting to the control head.

The Model TCN6055AJ is wired at the factory for channel 1 reverting. If another channel is desired for reverting, the white wire connected to terminal TB1-11 and the red-green wire connected to terminal TB2-21 should both be relocated to change the reverting channel. Make the connections as shown in the following table.

Reverting Channel	White Wire Terminal	Red-Green Wire Terminal
F1	TB1-11	TB2-21
F2	TB1-12	TB2-22
F3	TB2-13	TB2-23
F4	TB2-14	TB2-24

c. Restricting Channel Operation

Both control head models are shipped from the factory mechanically arranged for two-frequency operation. The control head is capable of up to four-frequency operation. To restrict the use of the control head to one-frequency operation remove the knob on the channel selector switch and loosen the "Allen" set screw using the wrench supplied. Move the channel stop screw from the center position to the threaded hole on the right. For three-frequency operation move the channel stop screw to the threaded hole on the left. For four-frequency operation, remove the stop screw. When the channel selector knob is replaced, place the knob in a position so the set screw contacts the flat spot on the shaft when it is tightened.

3. AUDIO ADJUSTMENTS

(Refer to Schematic Diagram 63D81106A57 for Model TCN6054AJ or 63D81106A58 for Model TCN6055AJ.)

The audio output level is controlled by a pad control located in the speaker input circuit. The audio output level minimum setting may be changed by replacing the 0.33 ohm, 1 watt resistor (R2), with a resistor of a lower or higher value. This resistor is connected directly to the pad control. Increasing the resistance of R2 raises the minimum level.

The audio for the handset is taken from the input to the pad and speaker circuit. Therefore, adjustment of the speaker level pad control has no effect on the handset level.

To change the handset audio level, replace the 3.9K ohm, 1 watt resistor (R1), located on terminal board TB1, with a resistor of higher or lower value. Increasing the resistance will decrease the output.

4. PILOT LIGHT CIRCUITS

The brilliance of the indicator may be adjusted as desired by changing the value of resistance in series with the bulbs (R3 and R4). Do not use resistances less than 33 ohms.

5. OPERATION OF CHANNEL REVERTING IN MODEL TCN6055AJ

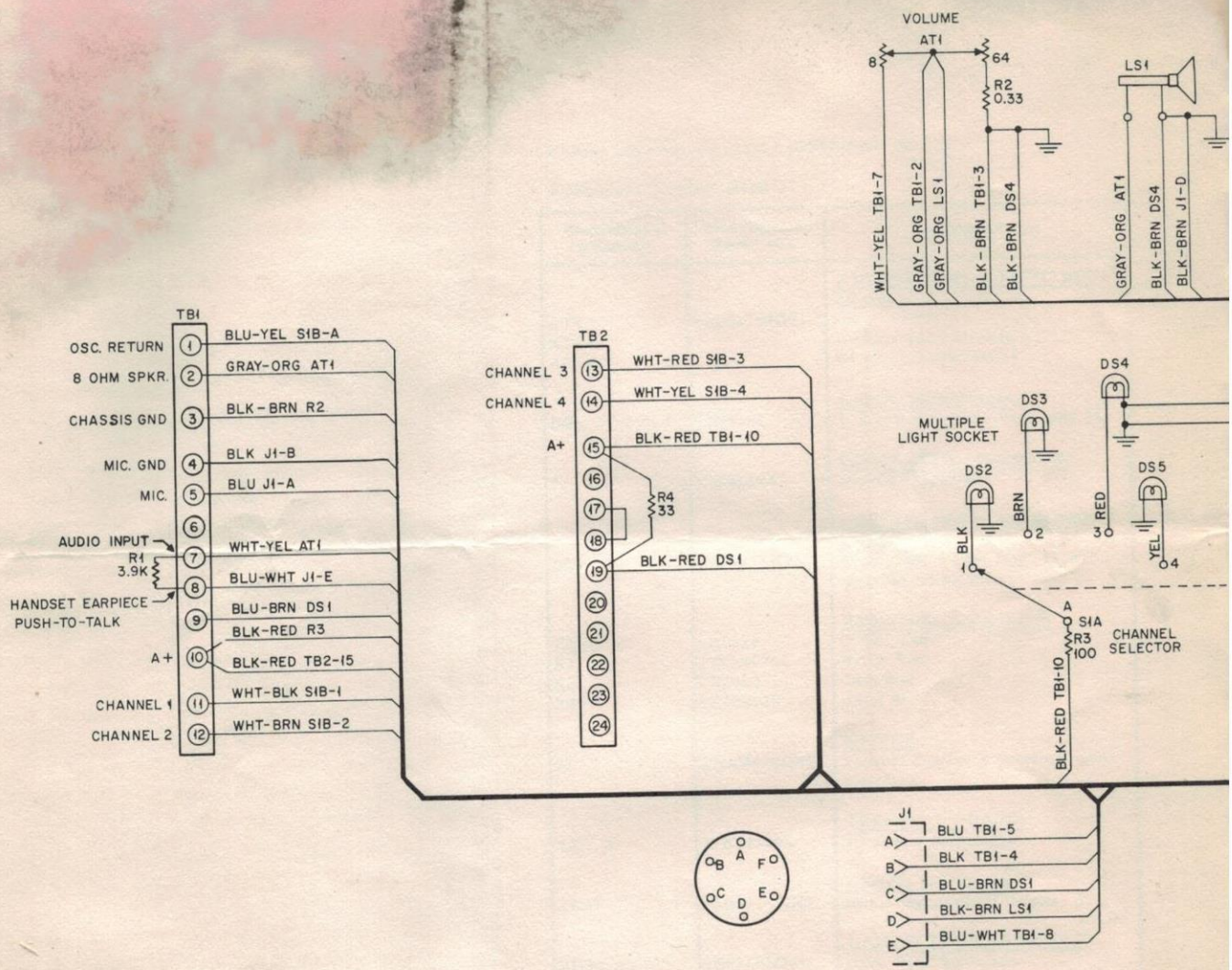
As the handset is removed from the hang-up cup, the contacts of the pushbutton switch (S2) close. The switch is located at the bottom of the top cup, out of the hang-up area. This closes the ground path for the reverting relay (K1). The control head remains on the reverting channel after the handset is removed. The operator should now choose the desired channel, and then press the red button just below the blue transmit jewel light. Notice that the frequency indicator light will always indicate the channel that the radio is receiving unless the red button is pushed, the knob does not necessarily indicate the correct frequency. The knob does indicate which frequency the radio set will operate on when the handset is removed and the button is pressed. The channel may be selected by the service technician as explained in paragraph 2. b.

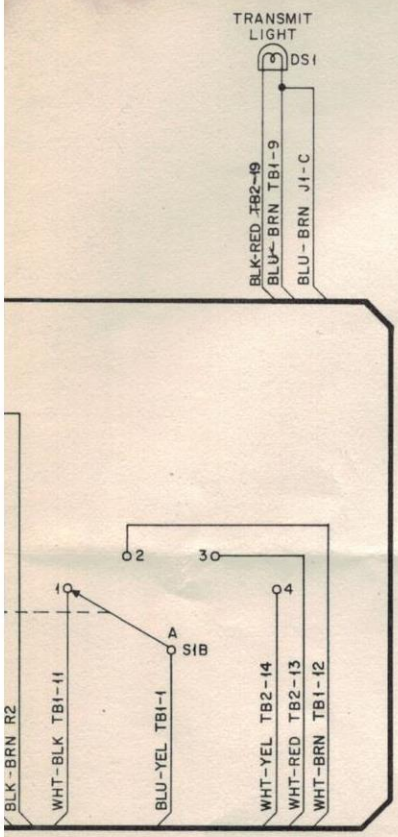
6. BULB REPLACEMENT

To replace the channel indicator lights, remove the screw in the socket mounting plate. Pull the socket mounting plate away from the castings to reveal the bulb. Insert a new bayonet type bulb and replace the socket mounting plate.

7. HANDSET

The Motorola TMC6002C Handset is available for use with these control heads. Models TMN6002A and TMN6002B can also be used and are directly interchangeable. These handsets incorporate a transistorized pre-amplifier unit. The handset includes a coiled cord, microphone connector and a cable clamp. The handset is not part of the control head but is available on separate order.


VOLUME
AT1
8
64
R2
0.33
LS1
WHT-YEL TB1-7
GRAY-ORG TB1-2
GRAY-ORG LS1
BLK-BRN TB1-3
BLK-BRN DS4
GRAY-ORG AT1
BLK-BRN DS4
BLK-BRN J1-D
TB1
OSC. RETURN
8 OHM SPKR.
CHASSIS GND
MIC. GND
MIC.
AUDIO INPUT
R1
3.9K
HANDSET EARPIECE
PUSH-TO-TALK
A+
CHANNEL 1
CHANNEL 2
BLU-YEL S1B-A
GRAY-ORG AT1
BLK-BRN R2
BLK J1-B
BLU J1-A
WHT-YEL AT1
BLU-WHT J1-E
BLU-BRN DS1
BLK-RED R3
BLK-RED TB2-15
WHT-BLK S1B-1
WHT-BRN S1B-2
TB2
CHANNEL 3
CHANNEL 4
A+
WHT-RED S1B-3
WHT-YEL S1B-4
BLK-RED TB1-10
R4
33
BLK-RED DS1
MULTIPLE
LIGHT SOCKET
DS3
DS4
DS2
DS5
BLK
BRN
RED
YEL
1
2
3
4
A
S1A
R3
100
CHANNEL
SELECTOR
BLK-RED TB1-10
J1
A
B
C
D
E
BLU TB1-5
BLK TB1-4
BLU-BRN DS1
BLK-BRN LS1
BLU-WHT TB1-8



GRAM NO. 63D81106A57

MODEL TABLE

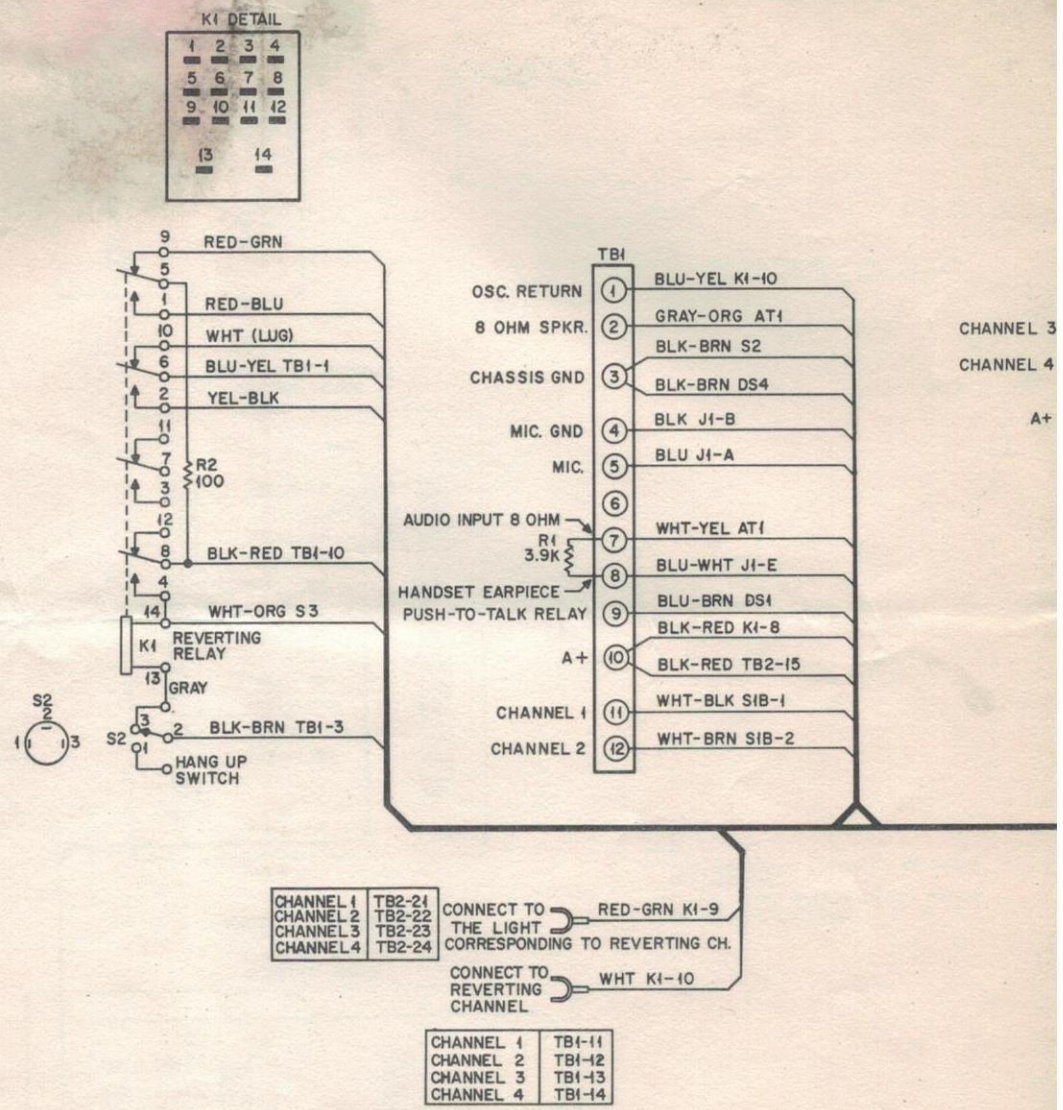
MODEL	SUFFIX	DESCRIPTION	APPROPRIATE HANDSET
TCN6054AJ		RAILROAD CONTROL HEAD	TMN6002C

PARTS LIST for diagram 63D81106A57-O

TCN6054AJ Control Head

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		ATTENUATOR, AF: "L" pad; 12 watt;
AT1 AT1A AT1B	18C82744G01	consists of: 8 ohms ±10% (front) 64 ohms ±10% (rear)
		LAMP, incandescent:
DS1, 2, 3, 4, 5	65R4151	6-8 v; 0.2 a; min. bay; type 51
		CONNECTOR, receptacle:
J1	9C848764	female; 6 contact
		LOUDSPEAKER, permanent magnet:
LS1	50D82731G01	5"; round; 8 ohm imp; 15 w; weather-resistant
		RESISTOR, fixed: ±10%;
R1	6R5618	3.9K; 1 w
R2	17K848766	0.33; 1 w
R3	6R3963	100; 2 w
R4	6R488016	33; 2 w
		SWITCH,
S1	40C82772G01	rotary: 2 pole; 4 position; non-shorting
		TERMINAL BOARD:
TB1, 2	31B880805	12 screw terminals
		LIGHT, indicator:
XDS1	60B82197H01	min. bay; incl BLU lens
		LAMPHOLDER ASSEMBLY:
XDS2, 3, 4, 5	9B82685G01	min. bay; 4 section

Model TCN6054AJ
Control Head
Schematic Diagram
Motorola No. 63D81106A57-O


K1 DETAIL
1 2 3 4
5 6 7 8
9 10 11 12
13 14
9 RED-GRN
5
1 RED-BLU
10 WHT (LUG)
6 BLU-YEL TB1-1
2 YEL-BLK
11
7 R2 100
3
12
8 BLK-RED TB1-10
4
14 WHT-ORG S3
K1 REVERTING RELAY
13 GRAY
S2
3 2 BLK-BRN TB1-3
1
HANG UP SWITCH
TB1
OSC. RETURN 1 BLU-YEL K1-10
8 OHM SPKR. 2 GRAY-ORG AT1
CHANNEL 3
BLK-BRN S2
CHANNEL 4
CHASSIS GND 3 BLK-BRN DS4
A+
MIC. GND 4 BLK J1-B
MIC. 5 BLU J1-A
6
AUDIO INPUT 8 OHM
R1 3.9K
7 WHT-YEL AT1
8 BLU-WHT J1-E
HANDSET EARPIECE
PUSH-TO-TALK RELAY
9 BLU-BRN DS1
BLK-RED K1-8
A+ 10 BLK-RED TB2-15
CHANNEL 1 11 WHT-BLK S1B-1
CHANNEL 2 12 WHT-BRN S1B-2
CHANNEL 1 TB2-21
CHANNEL 2 TB2-22
CHANNEL 3 TB2-23
CHANNEL 4 TB2-24
CONNECT TO THE LIGHT CORRESPONDING TO REVERTING CH.
RED-GRN K1-9
CONNECT TO REVERTING CHANNEL
WHT K1-10
CHANNEL 1 TB1-11
CHANNEL 2 TB1-12
CHANNEL 3 TB1-13
CHANNEL 4 TB1-14

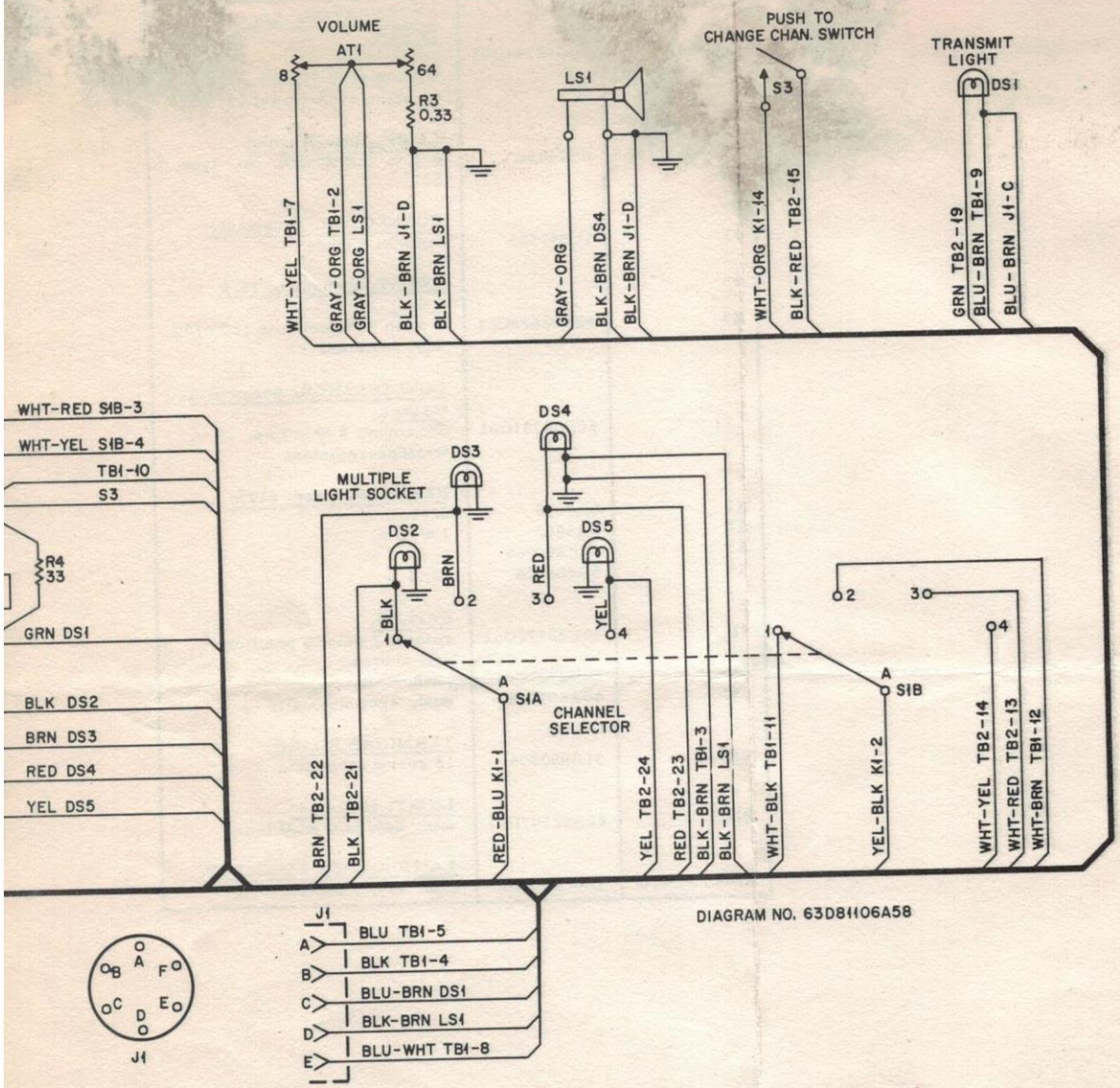


DIAGRAM NO. 63D81106A58

MODEL TABLE

MODEL	SUFFIX	DESCRIPTION	APPROPRIATE HANDSET
TCN6055AJ		RAILROAD CONTROL HEAD	TMN6002C

PREVIOUS REVISIONS LISTED
ON BACK OF THIS DIAGRAM

Model TCN6055AJ
Control Head
Schematic Diagram
Motorola No. 63D81106A58-O1
5/25/64-UP

REVISIONS

DIAG. ISSUE	CHASSIS AND SUFFIX NO.	REF. SYMBOL	CHANGE	LOCATION
O1	TCN6055AJ	R1, R2	REFERENCE SYMBOLS TRANSPOSED	TB1-7 AND K1-8.

PARTS LIST for diagram 63D81106A58-O1

TCN6055AJ Control Head

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		ATTENUATOR, AF: "L" pad; 12 watt;
AT1 AT1A AT1B	18C82744G01	consists of: 8 ohms ±10% (front) 64 ohms ±10% (rear)
		LAMP, incandescent:
DS1, 2, 3, 4, 5	65R4151	6-8 v; 0.2 a; min. bay; type 51
		CONNECTOR, receptacle:
J1	9C848764	female; 6 contact
		RELAY, armature: 13.6 v d-c;
K1	80C82628G01	4 form "C"; coil res 120 ±10% dust resistant
		LOUDSPEAKER, permanent magnet:
LS1	50D82731G01	5"; round; 8 ohm imp. 15 w; weather-resistant
		RESISTOR, fixed: ±10%;
R1	6R5618	3.9K; 1 w
R2	6R3963	100; 2 w
R3	17K848766	0.33; 1 w
R4	6R488016	33; 2 w
		SWITCH,
S1	40C82772G01	rotary: 2 pole; 4 position; non-shorting
S2	40B2737G01	push: spdt
S3	40A881084	push: spst-normally open
		TERMINAL BOARD:
TB1, 2	31B880805	12 screw terminals
		LIGHT, indicator:
XDS1	60B82197H01	min. bay; incl BLU lens
		LAMPHOLDER ASSEMBLY:
XDS2, 3, 4, 5	9B82685G01	min. bay; 4 section

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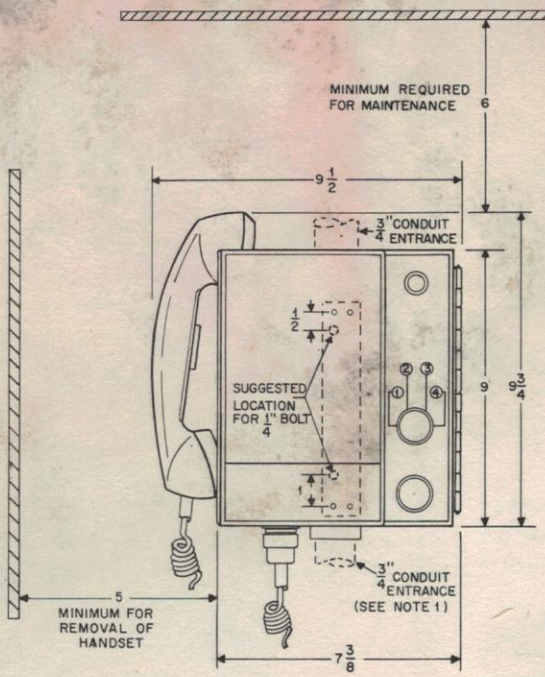
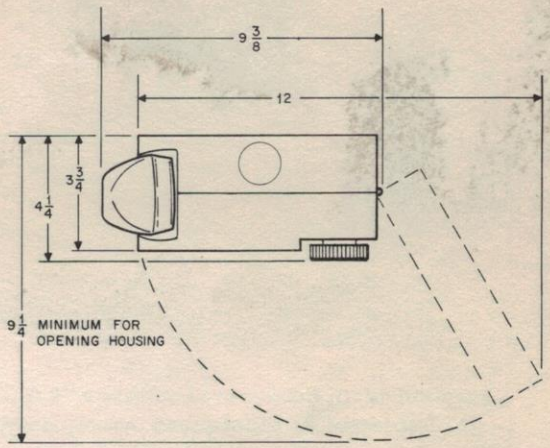
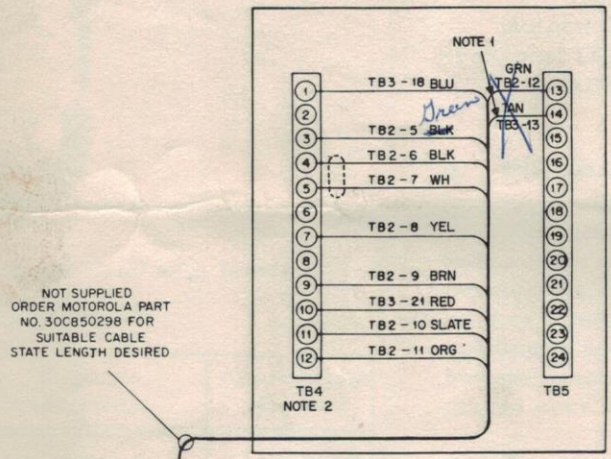




CEPD-10061

NOTE:
1. IF CONDUIT ENTERS TOP, REMOVE THE COVER AND USE IT TO CLOSE THE BOTTOM CONDUIT ENTRANCE IF IT IS NOT USED.
2. ALL DIMENSIONS ARE IN INCHES.

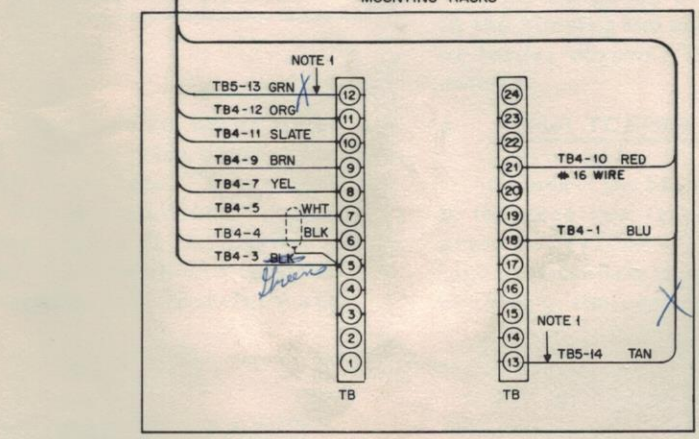
TCN6054AJ, TCN6055AJ CONTROL HEADS



NOT SUPPLIED ORDER MOTOROLA PART NO. 30C850298 FOR SUITABLE CABLE STATE LENGTH DESIRED

NOTES:
1. THESE CONNECTIONS USED WITH 4-FREQUENCY RADIO SETS ONLY.
2. TERMINAL BOARD NUMBERS ON THIS DIAGRAM ARE FOR REFERENCE ONLY.

TLN6072B, TLN1007A, B OR C & TLN1008A, B OR C MOUNTING RACKS



Model TCN6054AJ and TCN6055AJ Control Heads
Installation Detail
Motorola No. EPD-10175-O
5/25/64-UP